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## EIGHT NEW SPECIES OF APATANIINAE (TRICHOPTERA: LIMNEPHILIDAE) FROM CHINA

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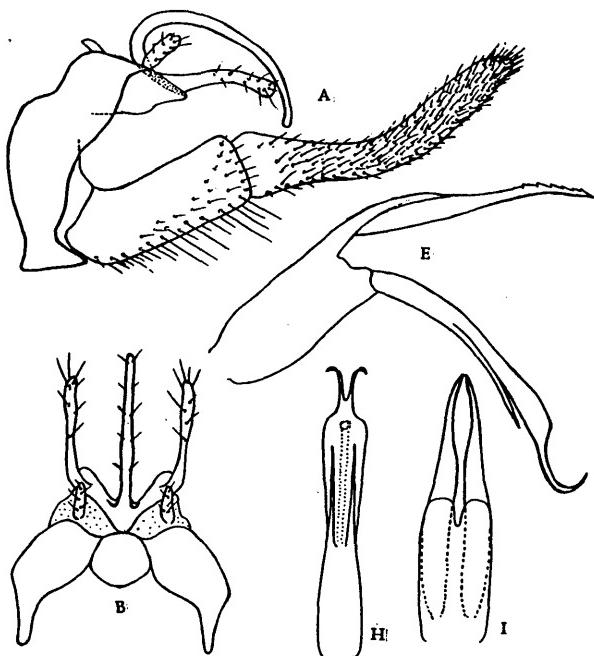
**Abstract.** Six new species of *Apatania* Kolenati (*A.semicircularis*, *A.sulciformis*, *A.robusta*, *A.bicruris*, *A.isimongolica*, *A.immensa*), one new species of *Moropsyche* Banks (*M.baishanzuensis*) and one new species of *Apatidelia* Mosely (*A.acuminata*) are described and figured.

Up to now, 18 species of *Apatania* Kolenati, 4 species of *Apatidelia* Mosely and 2 species of *Moropsyche* Banks have been found in China. *Moropsyche*, previously known from Burma, India, Nepal, Thailand and Vietnam is reported to the Chinese fauna. The terminology of the genitalic structure follows Schmid 1953. Type specimens are deposited in the Insect collection of Nanjing Agricultural University.

**Abbreviations in the figures:** A - lateral, B - dorsal, C - ventral, D - ventral view of right inferior appendage, E - lateral view of phallic organ, F - dorsal view of phallic organ, G - ventral view of phallic organ, H - ventral view of aedeagus, I - dorsal view of parameres, J - ventral view of internal branch, K - lateral view of segment 5 and 6.

*Apatania semicircularis* n.sp. (Fig.1)

Body dark brown, forewing length 7,5 mm. Male genitalia: Preanal appendages small, digitate; external branches of X slender, about three times as long as the formers and slightly curved ventrad in lateral view; internal branch of X single, strongly curved downward in a semicircle. Basal segments of inferior appendages cylindric, two and half times as long as its width; distal segments long, hairy, two times as long as the basal ones, with apical halves upturned in an angle of 45 degrees. Phallobase broad tube-like; apex of aedeagus abruptly narrowed and divided in two slender hooks, a pair of ventral processes of aedeagus thin, elongate spine-like. Parameres long, each tapering to point with apico-dorsal margin dentate in lateral view; cheliform in dorsal view.

Fig. 1. *Apatania semicircularis* n. sp.

Holotype male: Longwang Mountains, Anji Co., Zhejiang Province, 490-500m elev., 6.-11.4.1996, leg. Wu Hong. Paratypes: 22 males, same data as holotype.

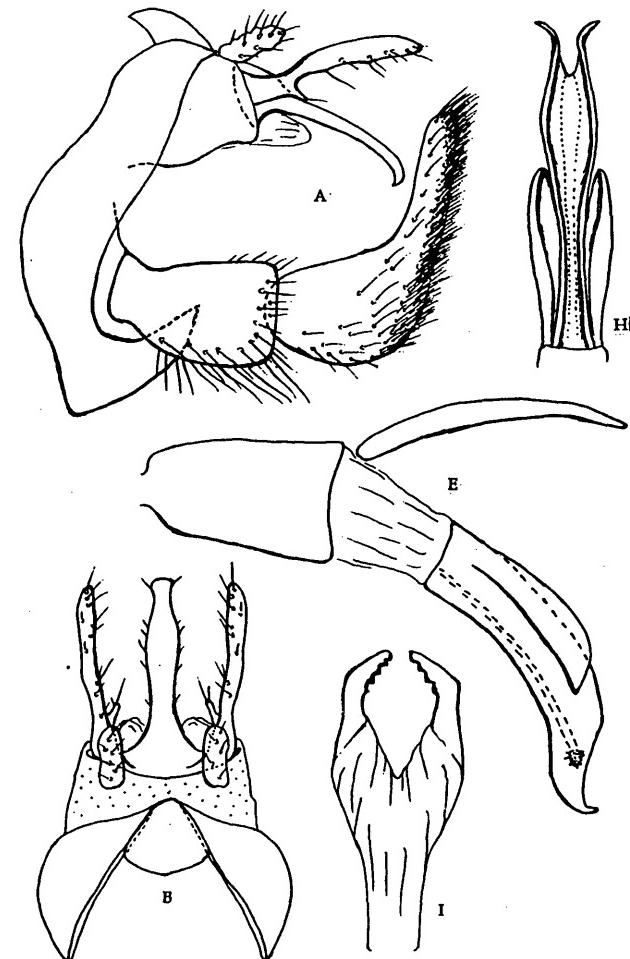
**Remarks.** This new species is clearly a member of *A.fimbriata* group, especially close to *A.tridigitulus* Hwang from southeastern China. The latter differs from the new species by: (1) external branches of X one and half times as long as preanal appendages; (2) internal branch straight, slightly longer than external one; and (3) parameres about one and half times as long as those of the new species, and obliquely cut at its apices.

*Apatania sulciformis* n.sp. (Fig.2)

Body dark brown, forewing length 8,5 mm. Male genitalia: Preanal appendages short and stout; external branches of X at least three times as long as the formers, each with a small projection near the base; internal branch single, dilated in the middle when seen dorsally but slender with hooked apex downward in lateral view. Basal segments of inferior appendages constricted at the base; distal segments stout at basal halves; apical halves obviously narrowed, hairy on the ventral surfaces and upturned in 90 degrees in side view. Phallobase broad tube-like; aedeagus groove-shaped, with apex divided in two stout, divergent hooks; a pair of broad leaf-like processes projecting from the base of aedeagus. Membranous portion of parameres divided apically; sclerotized portions each with apical halves curved inward and dentate on their inner surfaces.

Holotype male: Longwang Mountains, Anji Co., Zhejiang Province, 490-500m elev., 6.-11.4.1996, leg. Wu Hong.

**Remarks.** This new species is a member of *A.fimbriata* group, also close to *A.tridigitulus* Hwang from southeastern China. It can be easily

Fig. 2. *Apatania sulciformis* n. sp.

distinguished from the new species by: (1) external branches of X about one and half times as long as the preanal appendages and without basal projections; (2) internal branch straight, without middle dilation; (3) aedeagus simple, with a pair of long spine-like processes ventrally; (4) parameres about one and half times as long as those of the new species and obliquely cut at its apices.

**Apatania robusta n.sp. (Fig.3)**

Body yellow-brown, forewing length: male 7,4 mm, female 7,0 mm. Male genitalia: Preanal appendages very small, oval. External branches of X slender, capitate; internal branch single, dilated in the middle when viewed dorsally, in side view, its base erected from IX then straight directed backward. Basal segments of inferior appendages subcylindric, distal segments simply digitate, as long as basal segments. Phallobase tube-like; aedeagus slightly narrowed at middle, its apical portion abruptly constricted and divided into two divergent hooks. Parameres long, cheliform, each with inner margins dentate.

Holotype male: Jiuzhaigou, Nanping Co., Sichuan Province, 2440m elev., 26.6.1990, leg. Yang Lianfang. Paratypes: 2 males, 6 females, same data as holotype.

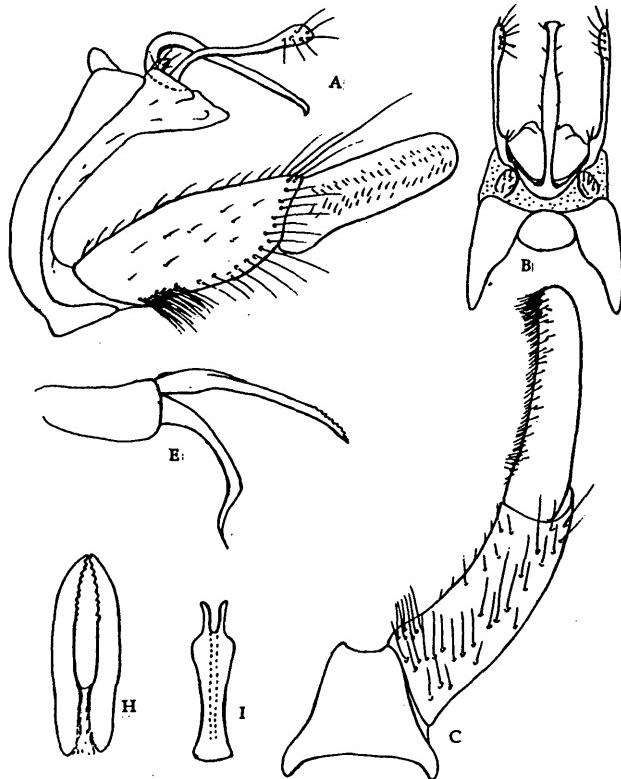


Fig. 3. *Apatania robusta* n. sp.

**Remarks.** This new species is also a member of *A.fimbriata* group and close to the previous new species *A.semicircularis* Leng & Yang from southeastern China. But based on the following characters in the latter, the new species can be easily distinguished by: (1) apical segments of inferior appendages two times as long as basal segments and its distal halves upturned; (2) aedeagus bearing a pair of ventral processes.

**Apatania bicruris n.sp. (Fig.4)**

Body dark brown, forewing length 7,5 mm. Male genitalia: Sternum IX two times as long as the tergum. Preanal appendages slender, about one third as long as external branch of X; internal branch single, digitate; ventral branches of X (=intermediate appendages according to Nelson

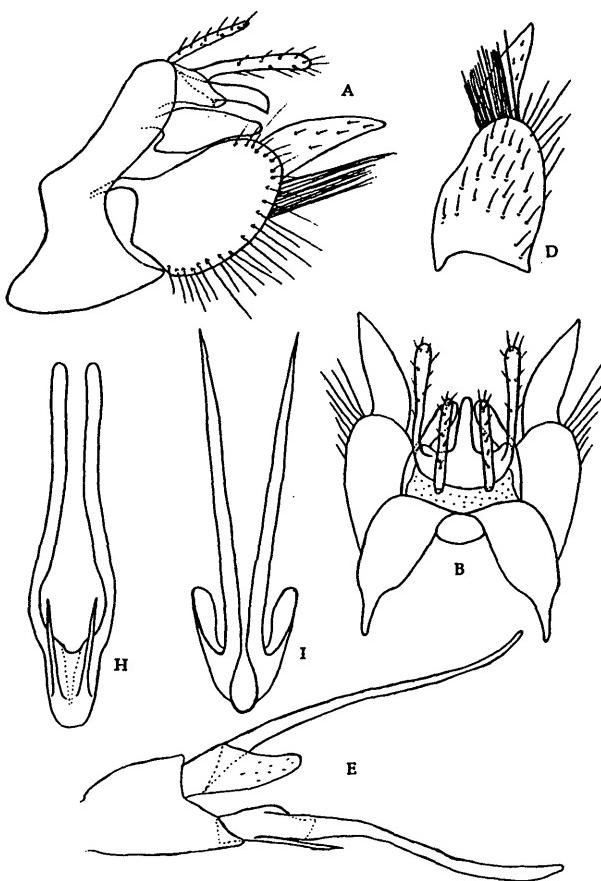


Fig. 4. *Apatania bicruris* n. sp.

1980) presented as a pair of lobes. Basal segment of inferior appendages large, broad and rounded, each with long, brush-like hairs apico-ventrally; distal segment half as broad as the basal one, each tapering to points and directed outward. Phallobase short, tube-like; aedeagus deeply divided in two very long branches, a pair of ventrobasal processes present but very short. Parameres very long, each bearing a large basal lobe.

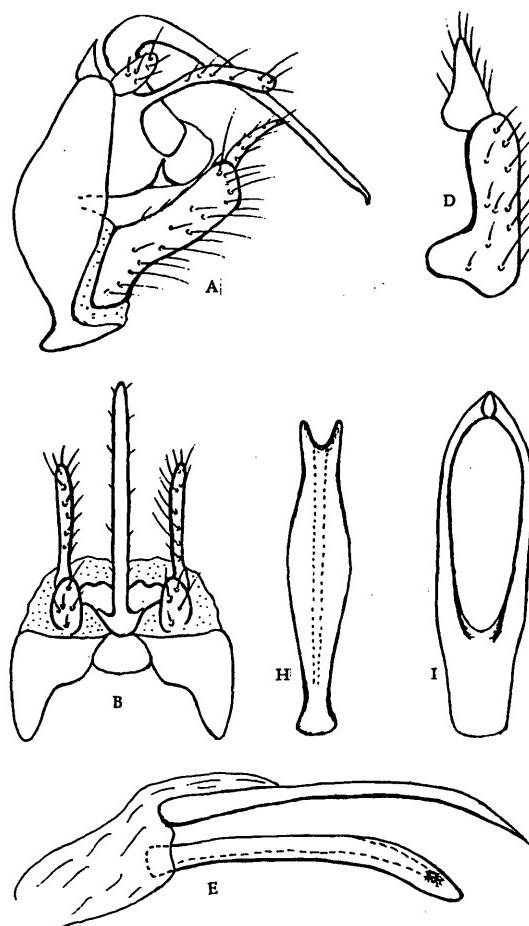
Holotype male: Longwang Mountains, Anji Co., Zhejiang Province, 490-500m elev., 6.-11.4.1996, leg. Wu Hong. Paratypes: 65 males, 21 females, same data as holotype.

**Remarks.** This new species is also a member of *A.fimbriata* group and close to *A.sinensis* Martynov from Central China. But in the latter, (1) the external branches of X are about three times as long as the preanal appendages; (2) the aedeagus is not divided; and (3) the parameres are without leaf-like basal lobes, so the new species may easily be distinguished.

**Apatania isimongolica n.sp. (Fig.5)**

Body yellow-brown, forewing length 6,5 mm. Male genitalia: Preanal appendages oval; external branches of X clavate, three times as long as the formers; single internal branch stout, about two and half times as long as external branch, strongly bent downward from the base. Basal segments of inferior appendages long-cylindric, at least three times as long as its width in lateral view; distal segments short and depressed, about half as long as the basal ones, triangular lobe-like in ventral view. Phallobase tube-like; aedeagus slender, dilated in its middle part, and apex incised when seen ventrally. Parameres cheliform and fused in their basal third, each long paramere spine bearing a subapical tooth in dorsal view.

Holotype male: Wasigou, Kangding Co., Sichuan Province, 2000m elev., 15.6.1996, leg. Wang Beixin.

Fig. 5. *Apatania isimongolica* n. sp.

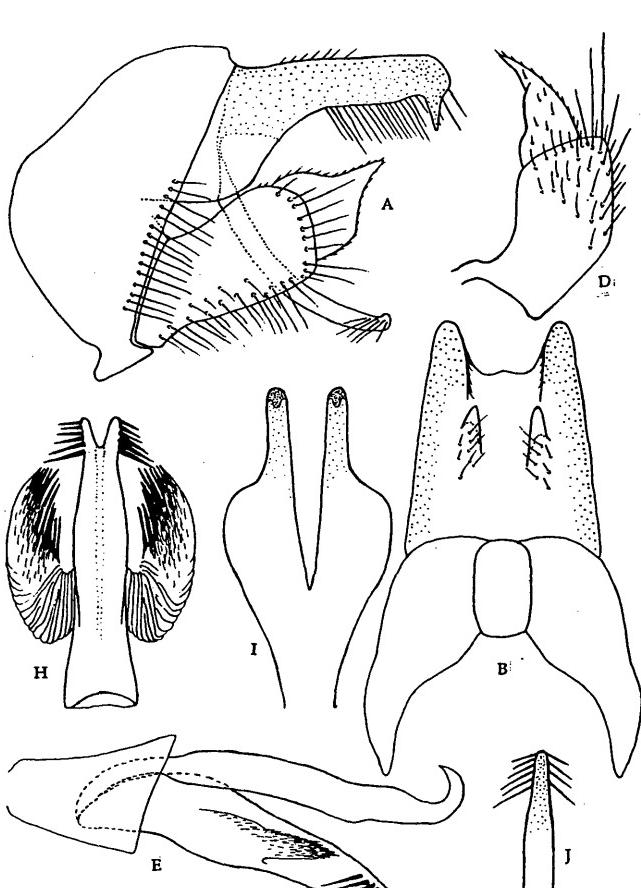
**Remarks:** This new species is also a member of *A.fimbriata* group, close to the eastern palaearctic species *A.mongolica* Martynov. It can be easily distinguished from the new species by: (1) internal branches of X about the same length as external branches; (2) distal segments of inferior appendages divided into two branches and (3) aedeagus bearing a pair of lateral processes.

#### *Apatania immensa* n.sp. (Fig.6)

Body yellow-brown, forewing length: male 9,0 mm, female 7,6 mm. Male genitalia: Segment IX broadest in the middle, about three times as broad as the sternum in side view. Preanal appendages vestigial, fused to the external branches of X and only visible in dorsal view. The external branches of X large, highly sclerotized and fused each other in its 3/4 length, each apex produced in an acute process directed ventrad; single internal branch slender, recurved downward with its apex stretching far below inferior appendage and with several stout setae apically. Basal segments of inferior appendages stout subcylindric, not quite two times as long as its width; apical segments two thirds as long as the basal ones, broad at base, then tapering to points, its apices slightly curved inward. Phallobase short, tube-like; aedeagus stout, shortly incised at apex with six long, black spines on each outer side; a pair of large, hairy elastic processes rising laterally from the base of aedeagus. Parameres fused in their basal third, strongly expanded in the middle and distal parts abruptly narrowed with each apex hooked upward.

**Holotype male:** Longwang Mountains, Anji Co., Zhejiang Province, 490-500m elev., 6.-11.4.1996, leg. Wu Hong. **Paratypes:** 26 males, 2 females, same data as the holotype.

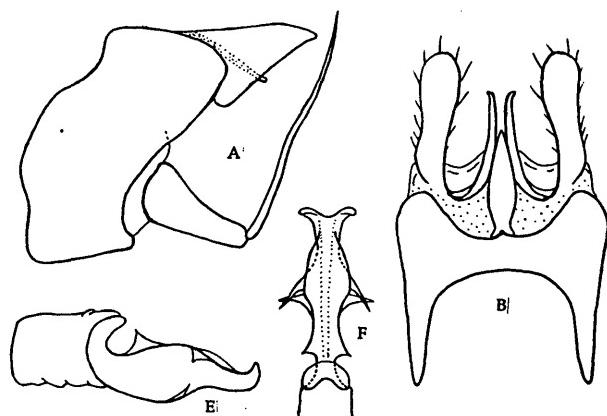
**Remarks.** This new species is a member of the *A.fimbriata* group, especially close to the Indian

Fig. 6. *Apatania immensa* n. sp.

species *A.devisaraspali* Schmid. But based on the following characters in the latter, the new species may be easily distinguished: (1) external branches of X not fused; (2) aedeagus without large lateral processes; (3) parameres slender and straight, not fused at base.

#### *Moropsyche baishanzuensis* n.sp. (Fig.7)

Body yellow-brown, forewing length of male 5,2 mm. Male genitalia: Dorsal lobe of IX single, lanceolate-like as seen from above. External branches of X broad with rounded apices in dorsal view but somehow triangular, two times as long as its base in lateral view; paired internal branches slender, about two thirds the length of the external ones. Basal segments of inferior appendages cylindric, tapered from the base to the ends; distal segments erected, elongate spine-like, two and half times as long as the basal ones. Phallic organ very complicate: base and apex of

Fig.7. *Moropsyche baishanzuensis* n.sp.

the organ projecting upward, two dorsal processes and one ventral process produced on each side margin of the phallus in lateral view; in ventral view, it is broadest in the middle with the apex divaricate.

Holotype male: Baishanzu, Qingyuan Co., Zhejiang Province, 1500m elev., 18.5.1994, leg. Wu Hong.

Remarks. This new species is the second species of *Apatelina* Martynov from China, close to the oriental species *A. falcata* Kimmins, but the latter differs from the new species by: (1) dorsal lobe of IX very short, just to reach the base of appendages of X; (2) external branches long, at least three times as long as the basal width in lateral view; (3) apical segments of inferior appendages about two times as broad as those of the new species and roundly curved dorsad when seen laterally.

#### *Apatidelia acuminata* n.sp. (Fig.8)

Body yellow-brown, forewing length: male 7,2 mm, female 6,8 mm. Lateral processes of sternum 5 short, not extended beyond the posterior margins of segment 5. Male genitalia: Sternum IX at least four times as long as tergum in lateral view. Preanal appendages short, oval. The external branches of X sickle-shaped, tapering to points; paired internal branches thin and short, as long as the preanal appendages. Basal segments of inferior appendages cylindric in lateral view; distal segments long, knife-like, three times as long as the basal segments, their inner surfaces densely covered with spines. Phallobase tube-like; aedeagus strongly narrowed in middle with apex divaricate in ventral view. Two parameres each divided in two branches at one-third distance from the base, dorsal branches straight with apices pointed each other and ventral ones with acute apices divergent.

Holotype male: Longwang Mountains, Anji Co., Zhejiang Province, 360-490m elev., 16.-20.10.1995, leg. Wang Beixin. Paratypes: 14 males, 13 females, same data as holotype.

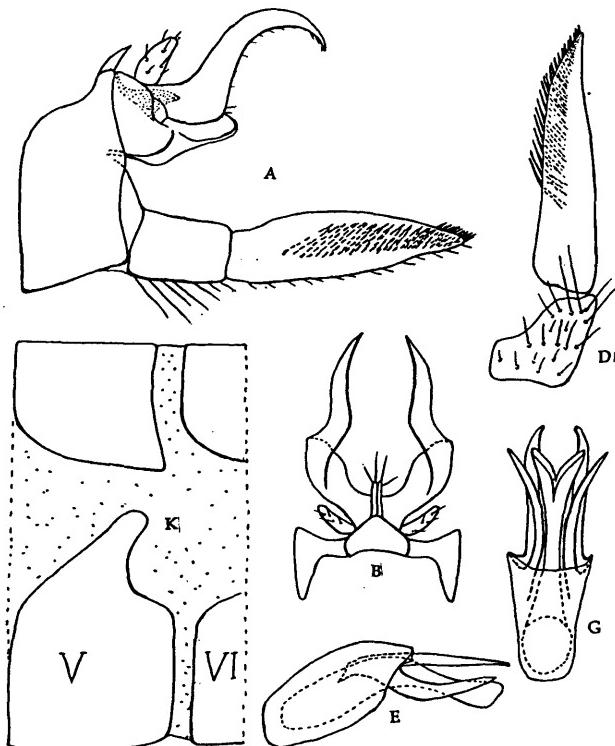


Fig. 8. *Apatidelia acuminata* n. sp.

Remarks. Only two species of this genus were found previously in China. The third species *A. acuminata* is similar to *A. martynovi* Mosely from southeastern China, but it can be separated from the former by: (1) the processes of sternum 5 extending beyond segment 5; (2) preanal appendages long, clavate; (3) external branches of X rounded apically, about two times as long as preanal appendages.

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